

# Toxic Substance Control Act (TSCA) Risk-based Disposal Approval (RBDA) Application for Management of Polychlorinated Biphenyl (PCB) Remediation Waste at the Former Distribution Box Disposal Area

## I. Introduction

The following TSCA Risk-based Disposal Application for management of PCB-containing soils located in the vicinity of the former collapsed distribution box and associated piping within the Friction Holdings LLC (Friction Holdings) facility, located at 1204 Darlington Avenue, Crawfordsville, Indiana (Site) has been prepared for review and subsequent approval by the U.S. EPA. This Risk-Based Disposal Application has been prepared in an effort to comply with the closure requirements presented in 40 CFR 761 Subpart D Storage and Disposal (761.61) as well as provisions of the Consent Decree (DOJ No. 90-5-2-1-07285) between the U.S. Department of Justice (DOJ) and Friction Holdings, dated July 25, 2009.

As presented in Appendix B (Statement of Work for TSCA Injunctive Relief) of the Consent Decree, and the associated TSCA Work Plan (TSCA WP) developed for characterization of the Site, submission of a Risk-Based Disposal Application is presented as an option for closure of this area of the Site. In addition to the Distribution Box, the following four areas of the Site as described in the TSCA WP, were evaluated:

- Abandoned portions of the 18-inch reinforced concrete pipe (RCP) filled and sealed;
- Pipe leading from the tunnel to the distribution box;
- Former 18-inch culvert area; and
- Tunnel area located beneath the Plant.

A discussion of the results of characterization sampling of each of these additional areas, with the exception of the utility tunnel<sup>1</sup>, is provided in this report. Characterization data associated with these additional areas is presented to assist in clarification of the overall characterization and evaluation of the Site as it relates to the former distribution box area. Based on the characterization sampling results obtained for these four areas, a Risk-Based Disposal Application is not required for these areas. However, these areas will be included in a deed restriction since they are abandoned in place.

The basic elements of the Risk-Based Disposal Application, as identified in 40 CFR 761.61, are presented in the following sections:

- II. Site Background and Description – Section II includes a history of reported activities associated with disposal of the PCB impacted materials in the vicinity of the former distribution box and associated pipe, and a detailed description of the location and extent of these materials.
- III. Site Investigation and Characterization – Section III is a summary of sampling activities and results from these characterization sampling conducted under the EPA Approved TSCA WP.

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<sup>1</sup> The Utility Tunnel is being addressed under 40 CFR 761.30(P) which is applicable specifically to continuous use of a porous surface.

- IV. Evaluation of Results and Comparison to Applicable Clean-up Levels – Section IV is an evaluation of the sampling results and a comparison with established Cleanup Levels in 40 CFR 761.61.
- V. Proposed Remedial Actions – Section V is a description of proposed remedial actions including installation of a cap, and recording of a deed restriction for this area of the Site.

## II. Site Background and Description

The Friction Holdings facility is located in at 1204 Darlington Avenue, Crawfordsville, Montgomery County, Indiana. The Site is located in an industrial complex on the northeast side of Crawfordsville and is surrounded by a mixture of industrial, commercial/retail, agricultural and residential properties. The Site is bordered by an agricultural property to the north, Tech Drive to the east, State Road 32 (Darlington Avenue) to the south and an active rail spur owned and operated by CSX to the west.

A shopping/retail center is located to the east across Tech Drive. Commercial retail properties including a car dealership, equipment rental center and restaurant properties are located across Darlington Avenue to the south. A combination of commercial and residential properties is located to the west of the rail spur.

The Site is characterized by mostly flat terrain with a slight slope from east to west. According to the Crawfordsville, Indiana USGS 7.5-minute quadrangle (USGS Map), the Site is located at latitude 40°02'30" and longitude 86°52'00" at an elevation of approximately 750 feet above mean sea level (MSL). **Figure 1** illustrates the Site location on a USGS topographic map.

The portion of the Site included in this Risk-Based Disposal Application includes the area of the collapsed former distribution box and associated pipe. As described in the EPA-approved TSCA Work Plan, the distribution box and associated piping was cleaned during the overall utility tunnel and former 18-inch RCP cleaning and abandonment activities conducted in 1996. Following the cleaning operations, the former distribution box was reportedly disconnected from the tunnel and the former 18-inch RCP system and crushed in place. The pipe leading from the tunnel to the former distribution box was subsequently connected to a newly installed sump located to the west of the boiler room and continues to be in service. The entire area of the former distribution box is currently covered at the surface by concrete which was reportedly installed when the new sump was installed in 1999.

In October 2009, Friction Holdings retained a contractor specializing in ground penetrating radar (GPR) services to locate any remnants of the former distribution box. The results of the GPR survey confirmed Friction Holdings' previously determined location of the former distribution box and associated piping. The approximate location of the former distribution box area and associated piping within the Site is presented in **Figure 2**.

## III. Site Investigation and Site Characterization

Site characterization activities including the former distribution box and associated piping, the former 18-inch RCP, and the former 18-inch culvert area were conducted in November 2010. A summary of the characterization activities and presentation of the results for each of these areas is provided in the following sections. Due to the former connection and close proximity to the former distribution box, results from the former 18-inch RCP characterization and the former 18-inch culvert area have been provided for further evaluation of the Site.

### **Former Distribution Box and Associated Piping (November 11, 2010)**

On November 11, 2010, a total of eight soil borings were installed within the vicinity of the former distribution box and along the associated former piping trace. Specifically, three borings (Borings DB-Comp-1-A thru DB-Comp-1C) were advanced within the vicinity of the pipe area extending from the tunnel, and five borings were advanced along the perimeter of the defined area of the collapsed distribution box. The borings were drilled via direct-push methodology using a Geoprobe®. Each boring was continuously sampled and logged to a minimum depth of eight feet below ground surface (BGS). One boring (Boring DB, Comp 1-B) was completed to a total depth of 12 feet BGS. This boring was advanced to a total of 12 feet BGS in an effort to further characterize the soils and lithology from 8 to 12 feet BGS. A total of four composite samples (two from fill and two from native soils associated with each structure) were collected for off-site analysis for total PCBs using EPA Method 8082. All sampling was conducted per the specifications presented in the approved TSCA FSP and QAPP.

Based on the analytical results of the characterization sampling, PCB Aroclor 1248 (Aroclor 1248) was detected at a concentration of 0.34 milligrams per kilogram (mg/kg) within the composite of the fill material from the piping and 0.33 mg/kg from the duplicate of this material. This material was collected from a depth of four feet BGS. Aroclor 1248 was also detected at a concentration of 61.4 mg/kg from the composite sample of the soils located along the perimeter of the former distribution box. This material was collected from a depth of eight feet. PCBs were not detected (above the method detection limit) in the composite sample of fill from adjacent the distribution box and/or within the native soil composite samples from adjacent the pipe (Borings DB-Comp-1-A thru DB-Comp-1C).

A summary of the samples including the results are presented in **Table 1**. Boring locations from which the composite samples were collected are presented in **Figure 3**. Boring logs for the borings installed within the vicinity of the former distribution box and associated piping are included as **Attachment A**.

### **Former 18-inch RCP Filled and Sealed:**

As described in the approved TSCA Work Plan, two sections of the 18-inch RCP were abandon-in-place in 1999. In **Appendix B** of the Consent Decree, only the 100-foot section filled and sealed in 2001, was identified as one of the subject areas to be characterized; however, Friction Holdings included an additional 220-foot section (referred to as Segment 3 in the Current Conditions Report, (Exponent 2004)) of the 18-inch RCP as part of the characterization activities. A description of the investigation and characterization activities for these two sections of the 18-inch RCP is provided below.

#### *Approximate 100-foot Section of the 18-inch RCP (Segment 2)*

On November 10, 2010, a total of 20 soil borings (Borings 100-A thru 100-T) were installed along this section of the former 18-inch RCP. The borings were installed by direct-push methodology using a Geoprobe®. Each boring was continuously sampled and logged to a minimum depth of eight feet BGS. A total of six composite samples (three each of pipe bedding and native soils) were collected for off-site analysis of total PCBs using EPA Method 8082. All sampling was conducted per the specifications presented in the approved TSCA FSP and QAPP. Based on the analytical results, PCB Aroclor 1254 was detected at a concentration of 0.065 mg/kg within the composite of the pipe bedding collected from borings J-R. PCBs were not detected above the method detection limit in any of the other samples. A summary of the samples including the results are presented in **Table 2**. Boring locations from which the composite samples were collected are presented in **Figure 4**.

### *220-foot Section of the Former 18-inch RCP (Segment 3)*

On November 10, 2010, a total of nine soil borings (Borings 200-A thru I) were installed along this section of the former 18-inch RCP. The borings were installed by direct-push methodology using a Geoprobe®. Each boring was continuously sampled and logged to a minimum depth of six feet. A total of two composite samples (one each of pipe bedding and native soils) were collected for off-site analysis for total PCBs using EPA Method 8082. All sampling was conducted per the specifications presented in the approved TSCA FSP and QAPP. Based on the analytical results, Aroclor 1248 was detected at a concentration of 0.16 mg/kg within the composite of the fill material from this section of the former 18-inch RCP. Aroclor 1248 was also detected at a concentration of 0.084 mg/kg in the duplicate of this composite. PCBs were detected in the native soil composite sample.

A summary of the samples including the results are presented in **Table 2**. Boring locations from which the composite samples were collected are presented in **Figure 4**.

### *Verification of Filling and Sealing of the Former 18-inch RCP*

Filling and sealing of portions of the former 18-inch RCP, referred to as Segment 3 in the Current Conditions Report (Exponent 2004), was conducted as part of the characterization activities. Upon inspection of a representative portion of this section of the former 18-inch RCP, it was determined that the majority of the former pipe was not filled. Only small segments of the RCP near the existing man-ways were filled with concrete. However, no liquids or sludges were observed in the pipe. On November 11, 2010 a flowable grout-cement mixture was pumped in the remaining open sections of the pipe.

### *Confirmation Sampling of the Pipe(s) from the Tunnel to the Distribution Box*

Upon further investigation of the piping from the tunnel to the distribution box, it was determined that the majority of this piping is located beneath the existing boiler room and was not accessible for sampling. The remaining section of the piping located outside the west side of the boiler room was characterized as part of the former distribution box and associated piping investigation activities. The results of these activities are discussed in the distribution box and associated piping section of this report.

Additionally, this pipe remains active and is currently connected to sump located outside the west side of the boiler room. Sampling of the interior surfaces of this pipe is to be conducted in order to evaluate compliance with 40 CFR 761.61 for Continuous Use of a Non-Porous Structure.

### **Sampling of the Grid discussed in the Current Conditions Report Beyond the Identified Property Boundary:**

On November 11, 2010, a total of 15 soil borings were advanced along the grid located beyond the identified property boundary as described in the Current Conditions Report (Exponent 2004). The borings were completed using a hand-auger and a post-hole digger. The depths of the borings ranged from 2 to 5 feet BGS. A total of 15 grab samples (one from each remaining grid point) were collected for off-site analysis for total PCBs using EPA Method 8082. All sampling was conducted per the specifications presented in the approved TSCA FSP and QAPP. Based on the analytical results, PCB Aroclor 1254 was detected at four locations (I-47, I-52, I-55 and I-57) at a concentration range of 0.051 to 3.0 mg/kg at a depth range of 2 to 5 feet BGS. No other PCBs were detected above the method detection limit in the remaining samples. A summary of the samples including the results are presented in **Table 3**. Boring locations from which the composite samples were collected are presented in **Figure 5**.

## **IV. Evaluation of Results**

Results from the characterization sampling indicated the presence of Aroclor 1248 at a concentration of 61.4 mg/kg from the soils located within the vicinity of the former distribution box at a depth of eight feet BGS. These soils and debris appear to be located at a depth of approximately 4 to 8 feet BGS and includes a total area of approximately 400 cubic feet (10'x10'x4'). Sampling results from samples collected at a depth of four feet within the same borings indicated no detectable concentration of PCBs. Sampling conducted immediately adjacent to the east along the pipe leading to the tunnel showed a concentration of 0.34 mg/kg Aroclor 1248 at a depth of four feet BGS and no detectable concentrations at a depth of eight feet BGS. Furthermore, sampling of native soils located along the former 18-inch RCP at a depth of eight feet were non-detect.

According to 40 CFR 761.61(a)(4), for purposes of cleaning, decontaminating, or removing PCB remediation waste under section 761.61, there are four general waste categories: bulk PCB remediation waste, non-porous surfaces, porous surfaces, and liquids. Furthermore, cleanup levels are based on the kind of material and the potential exposure to PCBs left after cleanup is completed.

The PCB-impacted soils remaining in the vicinity of the former distribution box and associated piping are best described as bulk PCB remediation waste. Additionally, due to the depth of the impacted soils (eight feet BGS), the location of the soils would meet the definition of a low-occupancy area as described in 40 CFR 761.3. According to 40 CFR 761.61(a)(4)(B), the cleanup level for bulk PCB remediation wastes in a low occupancy areas is <25 parts per million (ppm); and from >25 ppm to 100 ppm if the site is covered with a cap meeting the requirements of paragraphs 40 CFR 761.61(a)(7) and (a)(8).

Based on the overall characterization sampling conducted in November 2010, including sampling adjacent the former 18-inch RCP, it appears that PCB-impacted soils are concentrated within the area of the collapsed former distribution box at a depth of approximately 4 to 8 feet BGS and includes a total area of approximately 400 cubic feet (10'x10'x4').

## **V. Risk Evaluation**

A screening-level approach to risk evaluation of the former distribution box area has been selected for the Site due to the Site characteristics and the availability of screening levels for appropriate exposure scenarios. A discussion of this evaluation is provided as below.

Based on the site characterization results and site-specific information gathering, there appears to be two potential receptors and/or exposure scenarios for the PCB-impacted soils and debris associated with the former distribution box:

- Direct contact of soils and debris by facility personnel; and
- Direct contact of soils and debris by excavation workers.

A brief discussion of these exposure scenarios and applicable screening levels are provided below.

### **Direct Contact of Soils By Facility Personnel**

Due to the location and depth of the identified PCB-impacted soils, direct contact of soils and debris within the former distribution area by facility personnel appears unlikely. The soils and debris are located at a depth range of 4 to 6 feet BGS; and the area is covered with concrete. Additionally, based on the soil

sampling activities conducted under the TSCA SOW, the majority of the identified former distribution box area is covered by a minimum of three feet of clay (See **Attachment A** for boring logs).

According to 40 CFR 761.61(a)(4), for purposes of cleaning, decontaminating, or removing PCB remediation waste under section 761.61, there are four general waste categories: bulk PCB remediation waste, non-porous surfaces, porous surfaces, and liquids. Furthermore, cleanup levels are based on the kind of material and the potential exposure to PCBs left after cleanup is completed.

The PCB-impacted soils and concrete remnants remaining in the vicinity of the former distribution box and associated piping are best described as bulk PCB remediation waste. Additionally, due to the depth of the impacted soils (eight feet BGS) the location of the soils would meet the definition of a low-occupancy area as described in 40 CFR 761.3.

As identified in 40 CFR 761.61(a)(4)(B), the cleanup level for bulk PCB remediation wastes in a low occupancy areas is >25 ppm to 100 ppm if the site is covered with a cap meeting the requirements of paragraphs 40 CFR 761.61(a)(7) and (a)(8). The entire area of the former distribution box has been covered by concrete since abandonment; and a three foot thick clay layer was observed above the impacted materials during Site characterization activities.

#### Direct Contact of Soils By Excavation Workers

Direct contact of PCB-impacted soils by excavation workers would be the most-likely potential exposure scenario associated with the former distribution area. Due to the potential and proposed surficial excavation work to be conducted within the vicinity of the former distribution box, an evaluation of established screening levels for the excavation worker soil direct contact scenario was conducted for PCBs in soil.

For purposes of this evaluation, the recently published Indiana Department of Environmental Management (IDEM) *Remediation Closure Guide* dated March 22, 2012, was utilized. According to this document, IDEM has established a screening level for Aroclor 1248 of 460 mg/kg for the excavation worker soil direct contact scenario. As previously stated, the soils within the vicinity of the former distribution box were found to contain 61.4 mg/kg Aroclor 1248 at a depth of eight feet BGS; and 0.34 mg/kg Aroclor 1248 at a depth of four feet BGS adjacent to the piping.

It should be noted that once the concrete cap is repaired or replaced to meet the specifications established in 40 CFR 761.61(a)(7) and a deed restriction for the area is filed, further excavation and/or exposure to this material should be limited to a one time scenario.

## **VI. Proposed Remedial Actions**

In an effort to comply with the requirements established for disposal of bulk PCB remediation waste in a low occupancy area as established under 40 CFR 761.61, Friction Holdings proposes the following remedial actions for PCB-impacted soils remaining within the former Distribution Box Area:

- Replace the existing concrete overlying the former distribution box area with a concrete cap that meets the design requirements presented in 40 CFR 761.61(a)(7) including a minimum thickness of six inches;
- Maintain the above-described concrete cap in perpetuity;
- Develop and implement an on-site inspection and maintenance schedule to assure that the cap is maintained in acceptable condition; and
- Record a deed restriction in accordance with 40 CFR 761.61(a) (8).